



# 2011 Invasive Species Summit

January 17<sup>th</sup> and 18<sup>th</sup>, 2012

## FWP Aquatic Invasive Species Early Detection and Monitoring



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# Why do we do what we do?

- Purpose of Early-Detection and Monitoring
- Risk Assessment
- Traditional Techniques
- Emerging Techniques
- 2005-2011 Monitoring Data
- Plan for 2012 Monitoring
- Volunteer Efforts
- Zebra/Quagga Mussel Lab
- Discussion



# Purpose of Early Detection and Monitoring

- Part of the AIS Management Plan
- To minimize the harmful impacts of AIS
- Early detection is used to find small or source populations
- Monitoring is used in studying population trends
- These methods are more cost effective than the “wait and see” method
- Moving Target



# Risk Assessment

- Wild fish transfers – policy change
- Hatchery Inspections
- Prioritizations
  - Risk and new findings main factors in prioritizations
  - Other factors: survey data on boater movement and cleaning habits, waterbody size and use, angler pressure data, calcium data
- Likelihood of introduction



# Traditional Techniques

- Plankton sampling
- Invertebrate sampling
- Macrophyte sampling
- Cross polarized light microscopy
- PCR Testing
- Pathogen testing in fish





# Emerging Techniques

- Staying current on new techniques
- Example: eDNA in Asian Carp Detection



# eDNA Testing

## Pros

- More sensitive detection of a rare species
- Labs equipped with genetic testing capability should be ready to accept samples

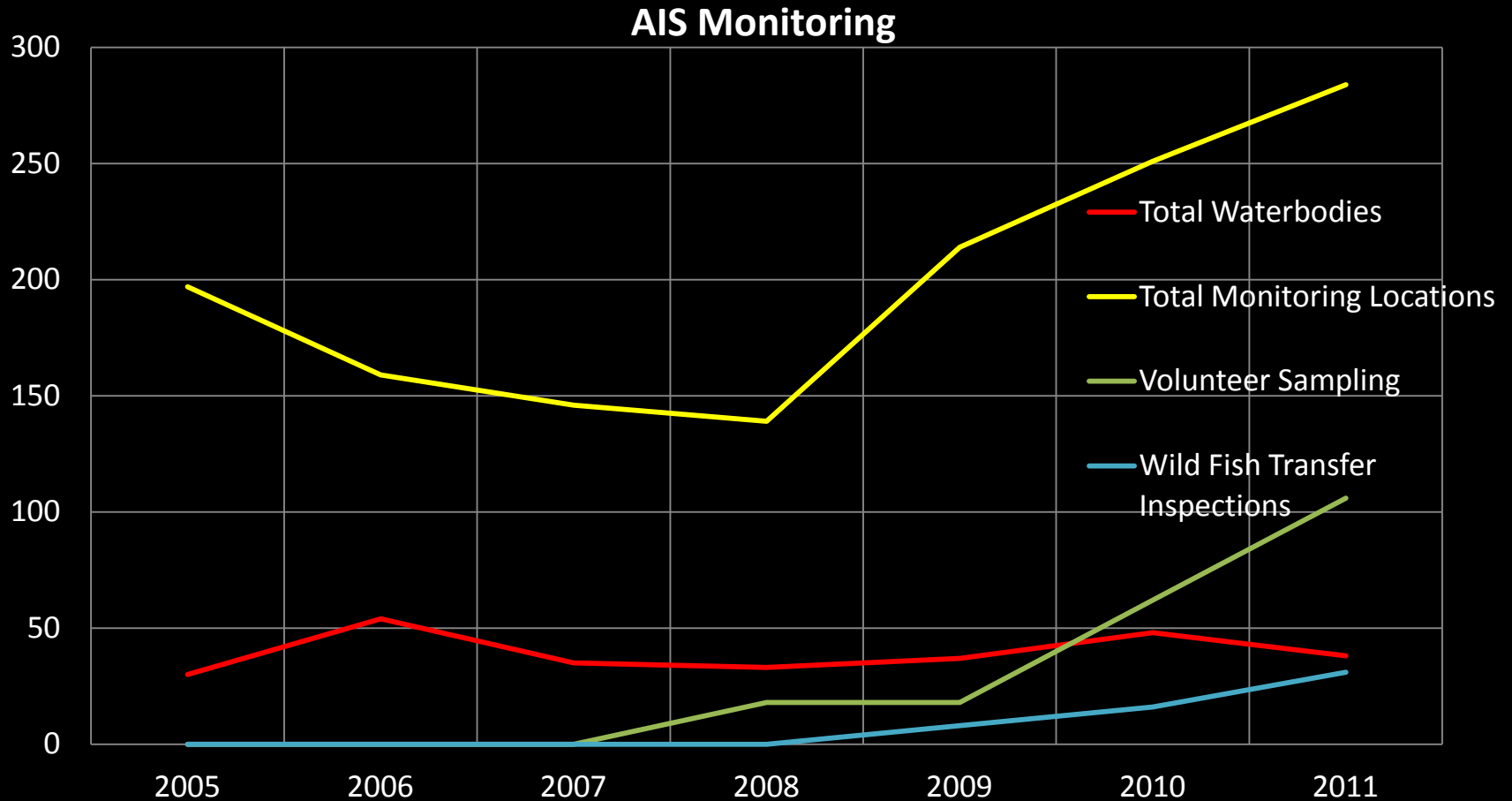
## Cons

- Cannot enumerate
- Cannot determine logistics of specimen
- Cannot pinpoint exact location

Facilities?  
Cost?  
Training?  
Error?



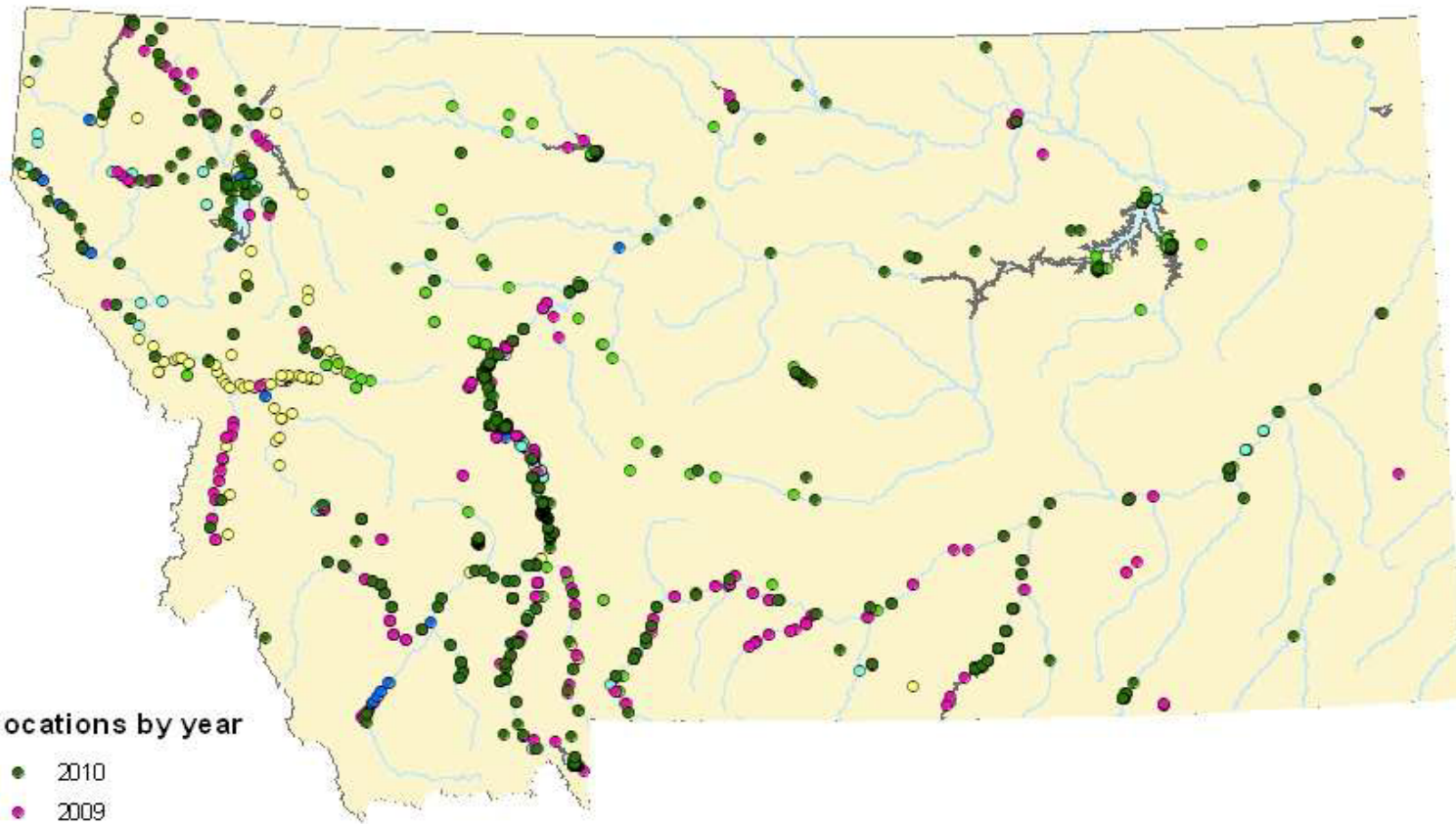
# 2005-2011 Monitoring Data







# AIS Sampling Locations



Sampling locations by year

- 2010
- 2009
- 2008
- 2007
- 2006
- 2005

0 60 120 240 Miles



**Montana Fish,  
Wildlife & Parks**

# 2011 AIS Early Detection and Monitoring Locations



Montana Fish  
Wildlife & Parks

# Agency Staff Training

## Plankton Collection

- BoR
- Counties

## EWM Contractors

## FWP Assistance - Full AIS Monitoring

- Fish Health Lab, Great Falls
- Regional Biologists



Photo Credits: Marc Terrazas, FWP



# Volunteer Efforts

## Plankton/Ca Sample Collection

- Whitefish Lake Institute
- Clearwater Resource Council
- Others



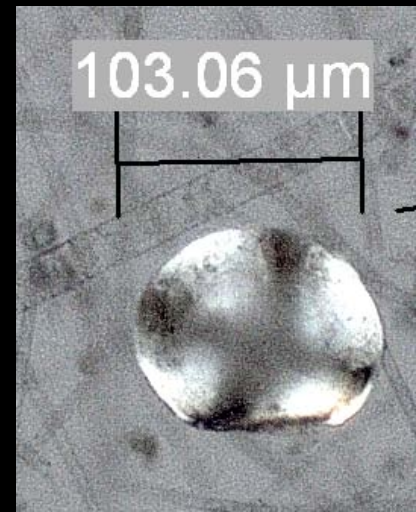
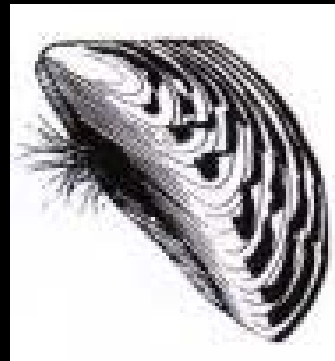
# 2012 Monitoring Plan

- Increase volunteer monitoring
- Increase training for other staff
- Continue prioritizations of waters for sampling
  - Risk and new findings
- Continue using current techniques
- More input from outside sources



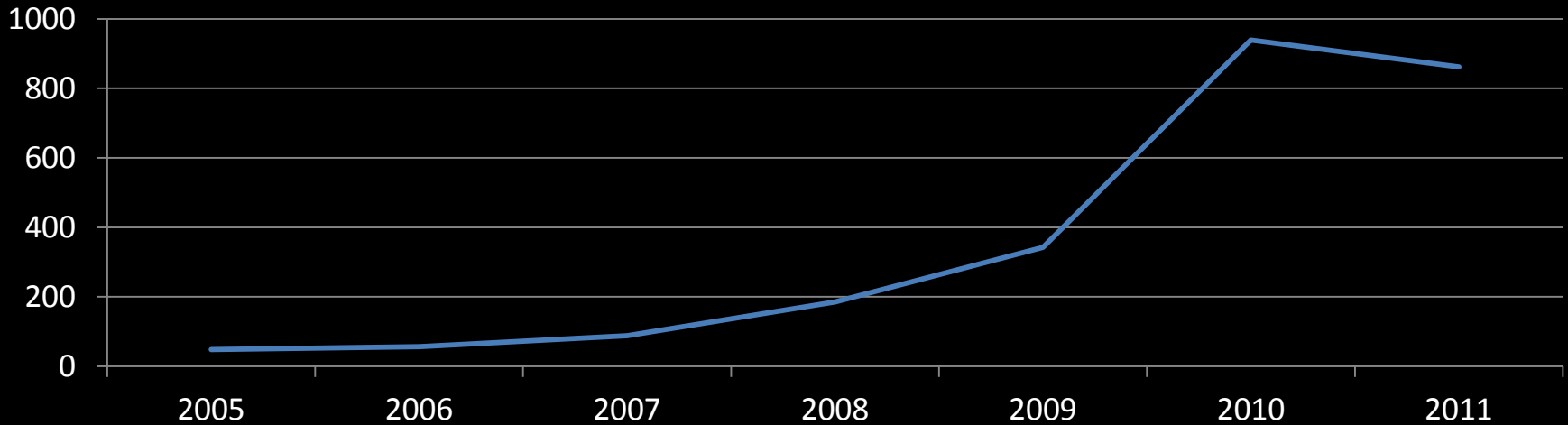
# Zebra/Quagga Mussel Lab – Helena, MT

- Processes plankton samples for Missouri River Basin, including: Kansas, Nebraska, Missouri, North Dakota, South Dakota, Wyoming and Montana
- Funding provided by FWS
- Double Blind Study participation
- 2 week turnaround time

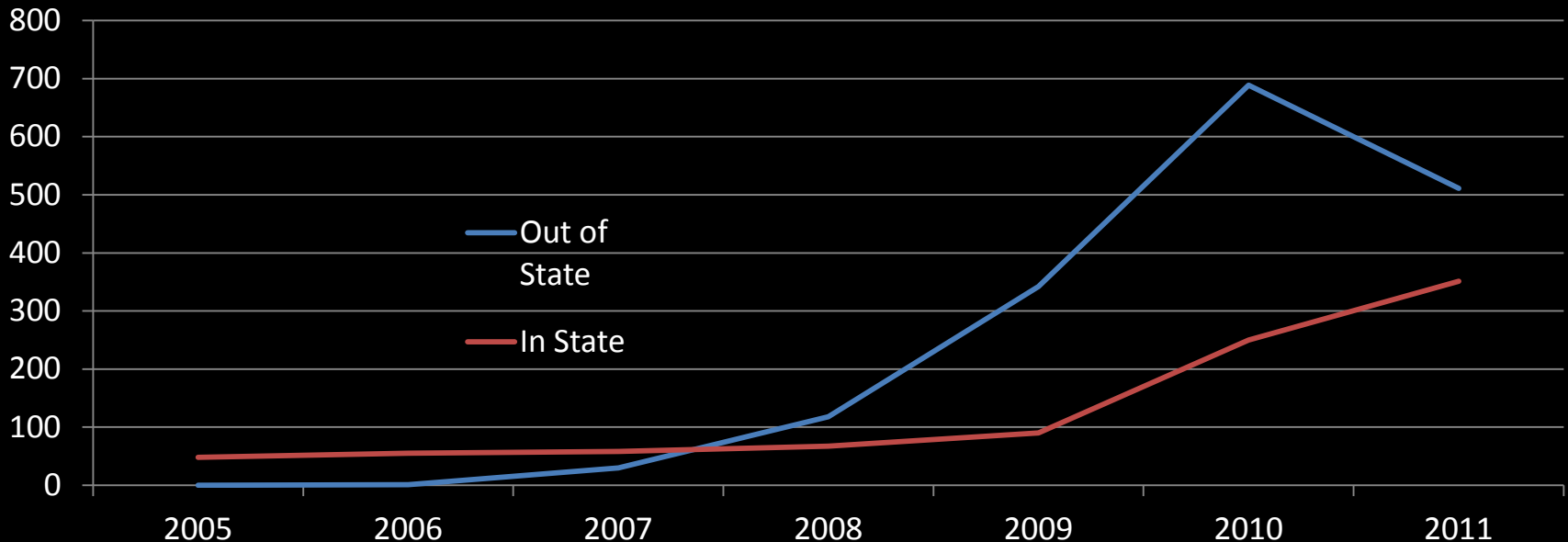


# Zebra/Quagga Mussel Lab – Helena, MT

## Total Number of Plankton Samples Processed by Lab Per Year



## Number of Plankton Samples Processed Per Year In-State vs. Out-of-State



# Discussion Questions

- How can our methods be improved or refined?
- How can we continue to train additional agency staff?
- How can we expand to include more volunteer opportunities?
- Would eDNA methods in early detection and monitoring be valuable to incorporate into Montana's protocols?
- We want more input on our early detection and monitoring from outside sources, how can we achieve this more efficiently?

Questions...

